Construction CPM Conference

Creating User Friendly Schedules The Human Side

Presented by

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Agenda

- Introduction
- What makes a "Good" schedule?
- Topics
 - Work Breakdown Structure (WBS)
 - > Descriptions
 - > Milestones
 - > Activity IDs
- Schedule Review
- Questions

Jonathan Japka, PMP

- 8 years as independent consultant (2004 to present)
 - 2008 Primavera Excellence Award
 Amtrak Engineering lead designer
 - > NY SCA, Lockheed Martin, Merck
- 14 years with Primavera Systems PAR (1990 to 2004)
 - > Taught Primavera software to over 3000 students
 - Consulted on over 100 projects
- Implemented over 20 Enterprise level systems
 - > Delaware DOT, NJ DOT, NJ SCA, NY SCA
- PMP certification since 1996
 - Instructor PMP Foundations class Delaware Valley PMI
 - > Taught at Villanova and Millersville Universities
- Specialization in Construction Management
 - Rutgers College of Engineering

What Makes a good schedule?

People Use it!

Why do people use it?

- Easy to use
- Makes Sense
- Well Organized
- Easy to understand
- User friendly

Bad Schedule

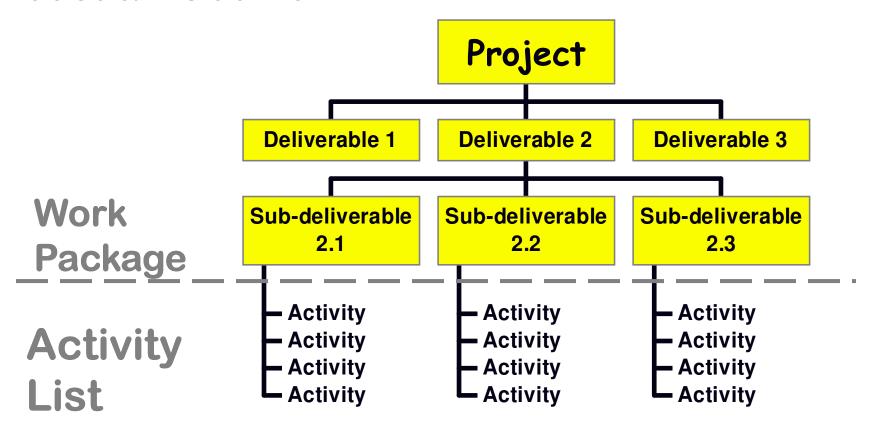
Z Layout: 04 Path ctivity ID	Path	Activity Name	BASE	Remaining	Start 4	.	2012	2					
•			Duration	Duration		Ma	ay Jun	Jul Aug	Sep Oct	Nov	Dec J	an Fe	eb Ma
■ Project:	JOINT	ARMED FORCES RESERVE CENTER	428	335	16-Dec-1								
∃ 🔫 Critical	l Path		312	295	08-May-1								
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= 2460	01	ERECT STEEL COL'S & BEAMS	10	10	04-Jun-12				EL COL'S &				
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= 2480	01	METAL DECKING	3	3	25-Jun-12		1 - 1	METAL D	T 1				
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3090	01	SET ROOF TOP CURBS/PENETRATIONS - HIGH ROOF	5	5	01-Aug-1:				ET ROOF T	1	1	1	1
3100	01	ROOF INSULATION - HIGH ROOF EAST	12	12	09-Aug-1:			_	■ ROOF IN:	1 1		1	1
3110	01	MEMBRANE ROOFING - HIGH ROOF EAST	12	12	13-Aug-1:				MEMBRA	1 1	1	1	1
= 12100	01	O/H ELECTRIC ROUGH-IN	10	10	30-Aug-1:			_	O/H E				1001
= 12105	01	O/H F/A & SECURITY ROUGH-IN	10	10	14-Sep-1:		1-11-			HF/A &IS			пент
= 12155	01	F/A & SECURITY WALL R/I	10	10	28-Sep-1.					F/A & SEI			
= 12160	01	WALL CLOSE-IN INSPECTION	3	3	12-0 ct-12					WALL C	1	1	1
= 12190	01	HANG DRYWALL	10	10	17-0 ct-12				i i -	HANG		1	-
= 12200	01	FINISH DRYWALL	15	15	19-Oct-12				i i -	FIN			
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= 22200	01	FINISH DRYWALL	15	15	04-Dec-1					1 7	1	INISH (1
= 22220	01	WOOD TRIM	5	5	26-Dec-1							WOOD	
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= 22240	01	FIRECAULK PARTITIONS	2	2	03-Jan-13						1-	FIREC	1
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22380	01	CEILING TILE	5	5	06-Mar-10							'	T,
= 90080	01	PERFORM VERIF TESTING, ADJUSTING & BALANCING	20	20	13-Mar-10								-
= 90090	01	HVAC COMMISSIONING	35	35	03-Apr-13								
90130	01	PRE-FINAL INSPECTION	10	10	22-May-1	-	1-11-			11-			

Good Schedule

✓ Layout: 04 Pa		Filter All: 04 Path code												
Activity ID	Path	Activity Name	BASE Duration	Remaining Duration			2012		1-			4		
- Projec	t: IOINT	ARMED FORCES RESERVE CENTER - May 2012	427	335	12-Dec-1	May J	lun J	ul Au	g Sep	Oct N	lov D	ec Ja	in Fel	b Mar
		ANIMED FORCES RESERVE CENTER - May 2012	310	295	08-May-1									
= 🤜 Critic														
== 2060		SECTOR B ERECT STEEL COL'S & BEAMS	5	2	08-May-1	SE SE	ECTOR	BERE	CT STEE	iL COL'S	3 & BEA	4MS		
= 2330		SECTOR A ERECT STEEL COL'S & BEAMS	5	7	22-May-1		SECT	ORĀE	RECT ST	EEL CO	L'S & B	EAMS		
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= 2470		SECTOR C DETAIL STEEL	3	3	19-Jun-12		■ SI	ECTOR	CIDETA	IL STEEL	L			
= 2480		SECTOR C METAL DECKING	3	3	25-Jun-12		. 9	ECTOR	СМЕТА	L DECK	JNG			
= 2500		SECTOR C INSLAB MECHANICAL R/I & HANGERS	5	5	28-Jun-12		_	SECTO	ir ic insi	LAB ME	CHANIC	CALİB7	1&HAN	NGERS
= 2520		SECTOR C PREP/POUR SLAB ON DECK	3	3	06-Jul-12			SECT	ой с РЕ	EP/POL	JR SLA	B ON E	DEĊK	
= 2530	01	SECTOR C MISC TUBE STEEL	5	5	12-Jul-12	IIi		. SEC	TÓR C.N	AISC TUI	BE STE	EL		
= 3080	01	ENC ROOF PARAPET & CLERESTORY FRAMING/SHEATHING - HR E	8	8	20-Jul-12			<u>■</u> E	NC ROO	F PARAF	PET & C	CLERES	STÓRY	/ FBAM
= 3090	01	ENC ROOF SET ROOF TOP CURBS/PENETRATIONS - HIGH ROOF	5	5	01-Aug-1:				ENC RO	OF SET	ROOF 1	TOP CI	URBS/	PÉNET
= 3100	01	ENC ROOF ROOF INSULATION - HIGH ROOF EAST	12	12	09-Aug-1:				■ ENC	ROOFF	100F II	NSULA	.TIÓN -	HIGH
= 3110	01	ENC ROOF MEMBRANE ROOFING - HIGH ROOF EAST	12	12	13-Aug-1:				ENC	ROOF	мемве	RANE F	ROÓFIN	ا ان Hi
= 1210	00 01	EAST 1ST FL O/H ELECTRIC ROUGH-IN	10	10	30-Aug-1:				E	AST 1S	T FLIO	/H ELE	CTRIC	ROUG
= 1210	05 01	EAST 1ST FL O/H F/A & SECURITY ROUGH-IN	10	10	14-Sep-1:					EAST				
= 1215	55 01	EAST 1ST FL F/A & SECURITY WALL R/I	10	10	28-Sep-1:					EAS				
= 1216	60 01	EAST 1ST FL WALL CLOSE-IN INSPECTION	3	3	12-0 ct-12					1 1				LOSE-IN
= 1219	90 01	EAST 1ST FL HANG DRYWALL	10	10	17-Oct-12					i = 7				DRYW
= 1220	00 01	EAST 1ST FL FINISH DRYWALL	15	15	19-Oct-12					_	1	1	1	SH DR
= 2120	00 01	WEST 2ND FL AREA B2 FINISH DRYWALL	15	15	09-Nov-1									LAREA
== 2220	00 01	EAST 2ND FL AREA C2 FINISH DRYWALL	15	15	04-Dec-1						<u> </u>	1	1	IDIFL A
= 2222	20 01	EAST 2ND FL WOOD TRIM	5	5	26-Dec-1						_	_	1	2ND FL
= 2223	30 01	EAST 2ND FL POINT-UP	2	2	03-Jan-13								EAST:	
= 2224	10 01	EAST 2ND FL FIRECAULK PARTITIONS	2	2	03-Jan-13								1	2ND FL
= 2225	50 01	EAST 2ND FL PRIME PAINT	5	5	07-Jan-13									T 2ND F
= 2228	60 01	EAST 2ND FL POINT-UP DRYWALL	2	2	14-Jan-13								LEAS1	
= 2227	70 01	EAST 2ND FL 2ND COAT	5	5	16-Jan-13								■ ¦EAS	
= 2228	30 01	EAST 2ND FLFINISH PAINT	5	5	23-Jan-13							- '		AST 2N
= 2231	10 01	EAST 2ND FLCEILING GRID	15	15	30-Jan-13									B JEAS
= 2233		EAST 2ND FL SPRINKLER DROPS & HEADS	15	15	13-Feb-10	1				11-				E.
2238		EAST 2ND FL CEILING TILE	5	5	06-Mar-10								- i •	
= 9008		PERFORM VERIF TESTING, ADJUSTING & BALANCING	20	20	13-Mar-10									-
= 9009		HVAC COMMISSIONING	35	35	03-Apr-13									
= 9013		PRE-FINAL INSPECTION	10	10	22-May-1									
	10 01	CODDECT DDG CINAL INCDECTIONS	10	10	00 L 40	- - -	- i			ļ <u>i</u>				

What is a WBS?

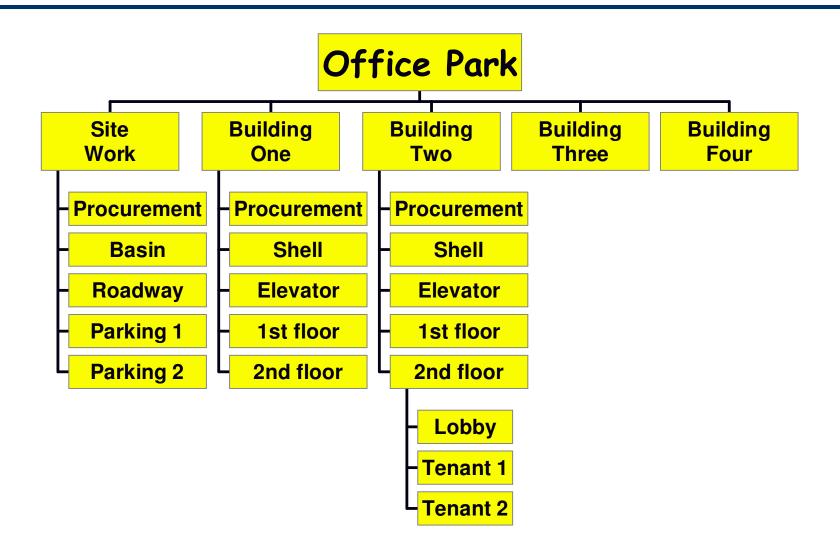
Just an Outline



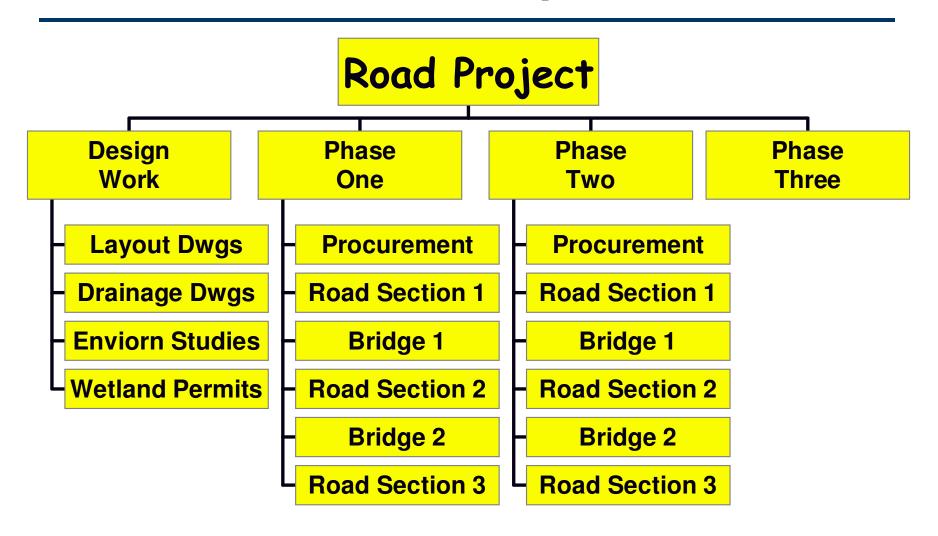
Construction Deliverables

- Engineering (Design)
 - > Studies
 - Drawings
 - > Reports
- Procurement
 - > Stuff
- Construction (Area)
 - **Building**
 - > Roads
- Start-up

WBS Example 1



WBS Example 2

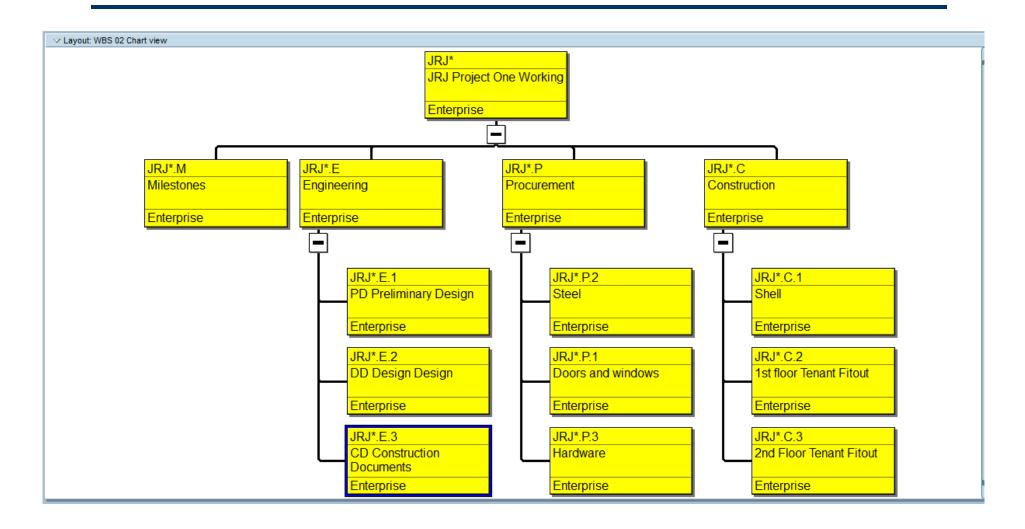


WBS Conclusion

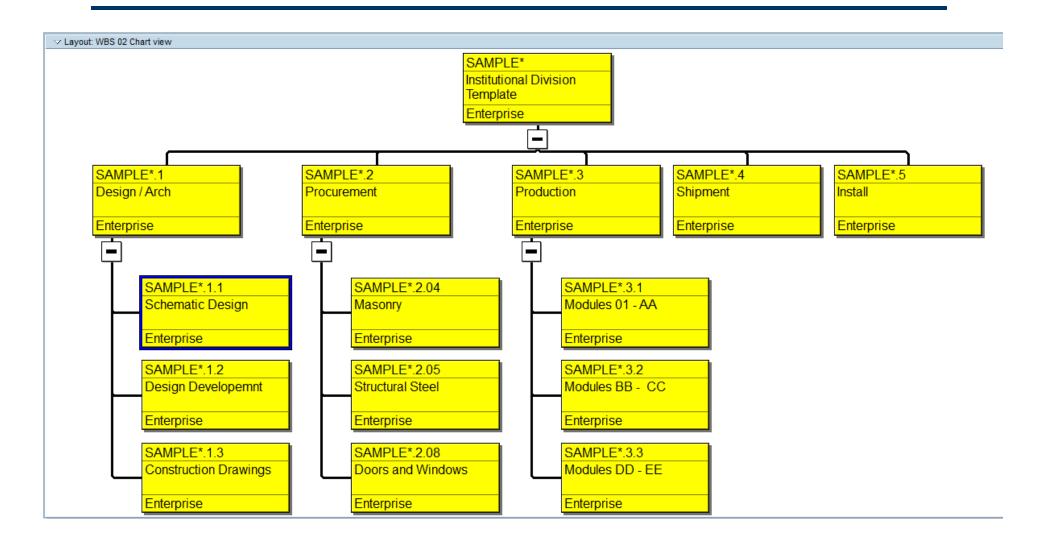
➤ By looking at the WBS, you can tell what's being accomplished.

- > It makes sense!
- Not by Responsibility or Contractor

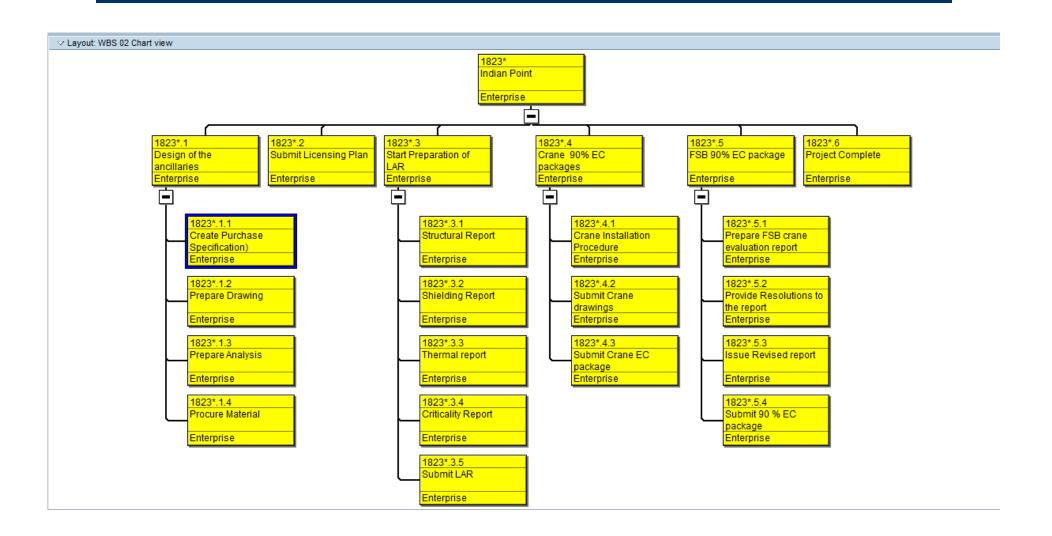
WBS Examples



WBS Examples



WBS Examples



Descriptions

- WBS Location / Noun / Verb
 - > This is not English class
- WBS (Capitals)
 - > Location in the outline
 - > Extremely important in critical path report
 - > Important in logic windows too
- Location / Noun
 - > What location or area in project and item
- Verb
 - Action what is being done to noun
- Example
- "BLDG A 1ST FL Electrical Rough-in"

Description Examples

✓ Layout: 00 Standa ctivity ID	Activity Name	All Activities Original Duration	Remaining Duration	Activity % Complete	Start	Finish	Tota Floa
■ Institution	al Division Template DESC	120	120		04-Jan-10	18Jun-10	0
🗆 🖥 Design / .	Arch	80	80		04-Jan-10	26-Apr-10	0
□ □ Schema	tic Design	30	30		04-Jan-10	12-Feb-10	0
A1000	Start Project	0	0	0%	04-Jan-10		0
■ A1010	SD Schematic Design	20	20	0%	04-Jan-10	29-Jan-10	0
■ A1050	SD Schematic Design Approval	10	10	0%	01-Feb-10	12-Feb-10	0
🖃 🖶 Design 🛭	evelopemnt	30	30		15-Feb-10	26-Mar-10	0
■ A1030	DD Structural Drawings	15	15	0%	15-Feb-10	05-Mar-10	5
■ A1040	DD Mech, Elec, Plumbing Drawings	15	15	0%	15-Feb-10	05-Mar-10	5
■ A1020	DD Architectural Drawings	20	20	0%	15-Feb-10	12-Mar-10	0
■ A1060	DD Design Development Approval	10	10	0%	15-Mar-10	26-Mar-10	0
🗏 🖶 Construc	ction Drawings	20	20		29-Mar-10	26-Apr-10	0
■ A1080	CD Construction Structural Drawings	15	15	0%	29-Mar-10	16-Apr-10	5
■ A1090	CD Construction Mech, Elec, Plumbing Drawi	ngs 15	15	0%	29-Mar-10	16-Apr-10	5
■ A1070	CD Construction Architectural Drawings	20	20	0%	29-Mar-10	23-Apr-10	0
■ A1100	CD Constructions Drawings Complete	0	0	0%	26-Apr-10		0
🗏 🚹 Procurer	nent	25	25		26-Apr-10	28-May-10	0
□ ➡ Masonry		25	25		26-Apr-10	28-May-10	0
■ A1220	PROC MASN Prepare Submittal	5	5	0%	26-Apr-10	30-Apr-10	0
■ A1230	PROC MASN Approve Submittal	10	10	0%	03-May-10	14-May-10	0
■ A1240	PROC MASN Order and Deliver	10	10	0%	17-May-10	28-May-10	0
□ □ Structure	al Steel	15	15		26-Apr-10	14-May-10	10
■ A1160	PROC STRU STEEL Prepare Submittal	5	5	0%	26-Apr-10	30-Apr-10	10
■ A1170	PROC STRU STEEL Approve Submittal	5	5	0%	03-May-10	07-May-10	10
■ A1180	PROC STRU STEEL Order and Deliver	5	5	0%	10-May-10	14-May-10	10
🖃 🖶 Doors ar	nd Windows	15	15		26-Apr-10	14-May-10	10
■ A1190	PROC STRU DOORS Prepare Submittal	5	5	0%	26-Apr-10	30-Apr-10	10
■ A1200	PROC STRU DOORS Approve Submittal	5	5	0%	03-May-10	07-May-10	10
■ A1210	PROC STRU DOORS Order and Deliver	5	5	0%	10-May-10	14-May-10	10
		15	15		21 May 10	10 lun 10	

Milestones

Milestone Management

- If the milestone is good, that section is good
- Simple and easy for managers to understand

Make easy to find

- > Place at the top of each section
- > Not embedded into the schedule

Levels

- > Align with WBS
- ➤ Level 1 Project
- **➤ Level 2 Major Contractual Events**
- ➤ Level 3 Keep points to monitor

Milestones

- Level 1 Project
- Level 2 Major Contractual (Money) Events
 - Notice to Proceed
 - > Substantial Complete
 - > Complete
- Level 3 Key points to monitor
 - > Design Complete
 - > Permits
 - > Water Tight
- Level 4 Lesser Events
 - Submittal Approved

Milestones Examples

√ Lay	out: 00 Standard Viev	v by WBS Filt	er: All Activities						
ctivity	ID	Activity Name		Original Duration	Remaining Duration	Activity % Complete	Start	Finish	Total Float
⊜ J	OINTARMED	FORCES RESERVE CENTE	R - May 201	508	335		15-Nov-11 A	30-Aug-13	0
	ı 1	NTP		0	0	100%	12-Dec-11 A		
	90120	WORK COMPLETION		0	0	0%		06-May-13	-10
	99000	SUBSTANTIAL COMP 03-JUN-13 (NTP+5	540 CD +1CD)	0	0	0%		05-Jul-13*	-31
	99999	FINAL GOVERNMENT ACCEPTANCE		0	0	0%		05-Jul-13	56
==	A1000	Contract duration		540	411	23.94%	12-Dec-11 A	05-Jul-13	-31
- ₽	PROCUREME	NT		296	174		15-Nov-11 A	17-Jan-13	77
-	PRECONS			223	101		06-Dec-11 A	17-0ct-12	1
	PC-10000	PRECON SITEWORK		5	0	100%	06-Dec-11 A	06-Dec-11 A	
	■ PC-10010	PRECON CONCRETE		5	0	100%	24-Feb-12 A	24-Feb-12 A	
	■ PC-10100	PRECON ELECTRICAL		5	0	100%	16-Apr-12 A	16-Apr-12 A	
	PC-10110	PRECON PLUMBING		5	0	100%	16-Apr-12 A	16-Apr-12 A	
	■ PC-10020	PRECON STEEL		5	0	100%	07-May-12 A	07-May-12 A	
	■ PC-10050	PRECON GEOTHERMAL		5	5	0%	29-May-12	05-Jun-12	-8
	■ PC-10040	PRECON METAL FRAMING		5	5	0%	05-Jun-12	12-Jun-12	-18
	■ PC-10060	PRECON ROOFING		5	5	0%	21-Jun-12	28-Jun-12	-19
	■ PC-10140	PRECON DRYWALL		5	5	0%	09-Jul-12	16-Jul-12	36
	■ PC-10090	PRECON MECHANICAL		5	5	0%	10-Jul-12	16-Jul-12	-14
	■ PC-10120	PRECON FIRE PROTECTION		5	5	0%	17-Jul-12	23-Jul-12	-4
	■ PC-10130	PRECON SITE CONCRETE		5	5	0%	17-Jul-12	24-Jul-12	56
	■ PC-10070	PRECON GLASS		5	5	0%	25-Jul-12	31-Jul-12	-18
	■ PC-10030	PRECON MASONRY		5	5	0%	03-Aug-12	09-Aug-12	15
	■ PC-10080	PRECON METAL WALL PANELS		5	5	0%	11-0ct-12	17-0ct-12	1
	P DECON			12	n		15-Mov-11 A	29.Dec.11 A	

Activity ID

- Make key milestones user friendly
 - > Easy to remember, easy to find
 - NTP Notice to Proceed
 - > SC Substantial Complete
- Rest
 - > Random numbers
 - No intelligence
 - > Let the system do the work
- Optional for uniqueness
 - ➢ Beginning some intelligence B1, B2, B3
 - Depends on system and number of users

Activity ID - more

- Adding Activities after Baseline Why?
 - Change Orders
 - > Clarifications
 - Rolling wave
- Imbed update reference in Activity ID
 - > Submission number
 - ➤ S01-xxxx submission 01
 - If use minor intelligence (last page)
 - B1-S01-xxxx
- Easy to know when added into schedule
 - > Easy to find to support owner requirements

Primavera P6 Implementation

Setup Training Consulting Scheduling



Primavera P6 Implementation

Setup Training Consulting Scheduling

Services

- > Heath Checks
 - Review installations analyzing for improvements
- ➤ Initial setup / configurations
- Customized P6 Training
 - Create training based your project
- Stock Training
- Program Scheduling (Multi Projects)
- Project Scheduling
 - Construction, Software Delivery, Refinery, Power, etc.

Primavera P6 Implementation

Setup Training Consulting Scheduling

For more information please contact:

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